

# The Healthy Eating Index, 1994-96

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To assess and monitor the dietary status of Americans, the Center for Nutrition Policy and Promotion has periodically issued the Healthy Eating Index (HEI). The HEI is composed of 10 components: Components 1-5 measure consumption of the five major food groups; components 6 and 7 measure total fat and saturated fat consumption; components 8 and 9 measure total cholesterol and sodium intake; and component 10 measures dietary variety. Each component is assessed in terms of dietary recommendations. The HEI was computed for all people 2 years of age and over and population subgroups using data from the 1994-96 Continuing Survey of Food Intakes by Individuals (CSFII). Most people's diet needs improvement. About 12 percent of the population has a good diet, and 18 percent has a poor diet. Americans especially need to improve their consumption of fruit and milk products. African Americans, people with low income, males age 15 to 18, and those with a high school diploma or less education have lower quality diets. These findings provide an awareness and better understanding of the types of dietary changes needed to improve people's eating patterns.

**S**ome recent reports have indicated that in 4 of the 10 leading causes of death (cardiovascular disease, certain types of cancer, stroke, and diabetes) in the United States, diet and lack of physical activity are significant contributing factors (5,12). It has been well documented that a healthful diet reduces the risk of chronic diseases such as cardiovascular disease and certain forms of cancer (8,17). A study using a healthy diet indicator, based on the

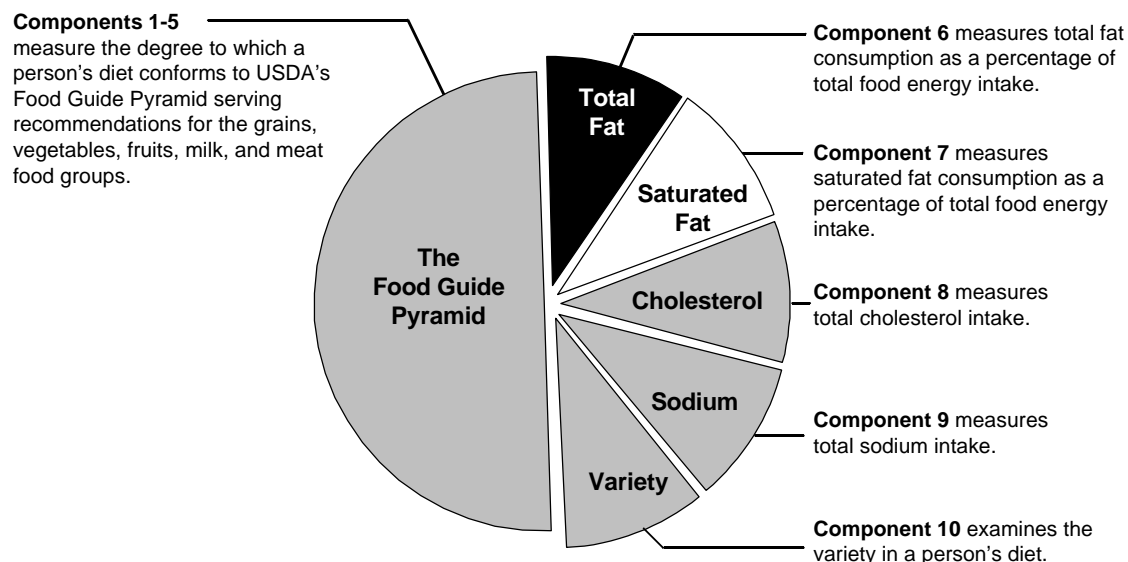
World Health Organization's dietary recommendations, found that mortality was lowest in people with the most healthful diets (6). Major improvements in the American public's health can, therefore, be made by improving the dietary patterns of people.

To assess the dietary status of Americans and monitor changes in these patterns, the U.S. Department of Agriculture's (USDA) Center for Nutrition Policy and Promotion (CNPP) developed the Healthy Eating Index (HEI) based on

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**Figure 1. Components of the Healthy Eating Index**



the work of Kennedy et al. (7) and first computed the Index using 1989 data. The HEI is a summary measure of people's overall diet quality (broadly defined in terms of adequacy, moderation, and variety). The Index consists of scores for consumption of the suggested number of servings of each of the five major Food Guide Pyramid food groups (15); intake of total fat, saturated fat, cholesterol, and sodium; and a measure of dietary variety (fig. 1). The HEI is the only index issued by the Federal Government, and computed on a regular basis, that gauges overall diet quality of the population. According to the American Dietetic Association, the Index is "The most accurate measurement to date on how Americans eat" (1).

This article presents the HEI for 1994-96—the most recent years for which nationally representative data are available to compute the Index. The HEI is calculated for the general population and selected subgroups. CNPP also compares the 1996 HEI with the 1989 HEI to examine possible trends in the diets of Americans.

### Components of the Healthy Eating Index

The Healthy Eating Index provides an overall picture of the types and quantity of foods people eat, their compliance with specific dietary recommendations, and the variety in their diets. The total Index score is the sum of 10 dietary components, weighted equally (table 1). The maximum overall HEI score is 100. The 10 components represent various aspects of a healthful diet.

- Components 1-5 measure the degree to which a person's diet conforms to the USDA Food Guide Pyramid serving recommendations for the five major food groups: Grains (bread, cereal, rice, and pasta), vegetables, fruits, milk (milk, yogurt, and cheese), and meat (meat, poultry, fish, dry beans, eggs, and nuts).
- Component 6 measures total fat consumption as a percentage of total food energy (calorie) intake.
- Component 7 measures saturated fat consumption as a percentage of total food energy intake.
- Component 8 measures total cholesterol intake.
- Component 9 measures total sodium intake.
- Component 10 measures the variety in a person's diet.

**Table 1. Components of the Healthy Eating Index and scoring system**

	Score Ranges <sup>1</sup>	Criteria for Maximum Score of 10	Criteria for Minimum Score of 0
Grain consumption	0 to 10	6 - 11 servings <sup>2</sup>	0 servings
Vegetable consumption	0 to 10	3 - 5 servings <sup>2</sup>	0 servings
Fruit consumption	0 to 10	2 - 4 servings <sup>2</sup>	0 servings
Milk consumption	0 to 10	2 - 3 servings <sup>2</sup>	0 servings
Meat consumption	0 to 10	2 - 3 servings <sup>2</sup>	0 servings
Total fat intake	0 to 10	30% or less energy from fat	45% or more energy from fat
Saturated fat intake	0 to 10	Less than 10% energy from saturated fat	15% or more energy from saturated fat
Cholesterol intake	0 to 10	300 mg or less	450 mg or more
Sodium intake	0 to 10	2400 mg or less	4800 mg or more
Food variety	0 to 10	8 or more different items in a day	3 or fewer different items in a day

<sup>1</sup>People with consumption or intakes between the maximum and minimum ranges or amounts were assigned scores proportionately.

<sup>2</sup>Number of servings depends on Recommended Energy Allowance—see table 2. All amounts are on a per day basis.

### USDA Food Guide Pyramid Food Group Components

The USDA Food Guide Pyramid translates recommendations from the *Dietary Guidelines for Americans (16)* into groups and amounts of foods people can eat to achieve a healthful diet. The recommended number of Food Guide Pyramid servings depends on a person's caloric requirement. In developing the Index, the researchers used serving recommendations from the Food Guide Pyramid for various age/gender groups. Pyramid serving recommendations for 1600, 2200, and 2800 calories were used as the basis to interpolate serving recommendations for age/gender groups not described in the Pyramid (table 2).

A maximum score of 10 was assigned to each of the five food group components of the Index. People whose diets met or exceeded the recommended number of servings for a food group received the maximum score of 10 points. For example, if a person's diet met the fruits group serving recommendations, then that person's diet was awarded 10 points. For each of the five major food groups, a score of zero was assigned to the respective components if a person did not consume any item from the food group. Intermediate scores were computed proportionately to the number of servings consumed. For example, if the serving recommendation for a food group was eight and a person consumed four servings,

the component score was 5 points. Similarly, if six servings were consumed, a score of 7.5 was assigned.

The Recommended Energy Allowance (REA) (9) for children 2 to 3 years of age is less than 1600 kilocalories. The recommended number of servings was kept at the minimum serving level for these children, but the serving size was scaled downward to be proportionate with their food energy recommendations. This approach is consistent with Food Guide Pyramid guidance. In contrast, adult males 15 to 50 years old have an REA slightly greater than 2800 kilocalories (9). Because the Food Guide Pyramid does not specify additional food group

**Table 2. Recommended number of USDA Food Guide Pyramid servings per day, by age/gender categories**

Age/gender category	Energy (kilocalories)	Grains	Vegetables	Fruits	Milk	Meat <sup>1</sup>
Children 2-3 <sup>2</sup>	1300	6	3	2	2	2
†	1600	6	3	2	2	2
Children 4-6	1800	7	3.3	2.3	2	2.1
Females 51+	1900	7.4	3.5	2.5	2	2.2
Children 7-10	2000	7.8	3.7	2.7	2	2.3
Females 11-24	2200	9	4	3	3	2.4
†	2200	9	4	3	2	2.4
Females 25-50	2200	9	4	3	2	2.4
Males 51+	2300	9.1	4.2	3.2	2	2.5
Males 11-14	2500	9.9	4.5	3.5	3	2.6
†	2800	11	5	4	2	2.8
Males 19-24	2900	11	5	4	3	2.8
Males 25-50	2900	11	5	4	2	2.8
Males 15-18	3000	11	5	4	3	2.8

<sup>1</sup>One serving of meat equals 2.5 ounces of lean meat.

<sup>2</sup>Portion sizes were reduced to two-thirds of adult servings except for milk for children age 2-3.

† Recommended number of servings per day at food energy levels specified in the Food Guide Pyramid (15).

servings for caloric levels above 2800 kilocalories, researchers decided that food portions for these individuals would be truncated at the maximum levels recommended in the Food Guide Pyramid. For more details on determination of Food Guide Pyramid serving definitions, estimation of food group serving requirements by age and gender, and design alternatives, the reader is referred to the administrative report (3).

For each of the five major food groups, serving definitions used to compute the food group scores were intended to be as consistent as possible with the concepts

and definitions described in the Food Guide Pyramid (15). Serving definitions reflect consistency with the underlying rationale in terms of nutrient contributions from each of the five major food groups. These definitions are also consistent with the Pyramid concept of defining servings in common household measures and easily recognizable units. The servings calculated for the HEI were based on the Pyramid Servings database developed by the USDA's Agricultural Research Service.

In calculating the HEI, USDA researchers found it necessary to assign the foods in

mixtures, in the appropriate amounts, to their constituent food groups. Pizza, for example, can make significant contributions to several food groups, including grains, vegetables, milk, and meat. The approach used was a straightforward extension of the one used to estimate serving sizes. Commodity compositions of foods were identified. Commodities were then assigned to appropriate food groups based on the gram/serving size factors that were calculated. Dry beans and peas were first assigned to the meat group if the meat serving recommendations were not met, after which they were added to the vegetables group.

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### **Fat and Saturated Fat Components**

Index scores for fat and saturated fat intakes were examined in proportion to total food energy expressed as kilocalories. Total fat intake of less than or equal to 30 percent of total calories in a day was assigned a maximum score of 10 points. This percentage is based on the 1995 recommendations of the *Dietary Guidelines for Americans*. Fat intake equal to, or greater than, 45 percent of total calories in a day was assigned a score of zero. Intake of fat between 30 and 45 percent was scored proportionately.

Saturated fat intake of less than 10 percent of total calories in a day was assigned a maximum score of 10 points. This percentage is also based on the 1995 recommendations of the *Dietary Guidelines for Americans*. Saturated fat intake equal to, or greater than, 15 percent of total calories in a day was assigned a score of zero. Intake of saturated fat between 10 and 15 percent was scored proportionately. The upper limit percentages for fat (45 percent) and saturated fat (15 percent) were based on consultation with nutrition researchers and exploration of the consumption distribution of these components.

### **Cholesterol Component**

The score for cholesterol was based on the amount consumed in milligrams. A score of 10 points was assigned when daily cholesterol intake was 300 milligrams or less. This amount is based on recommendations of the Committee on Diet and Health of the National Research Council and represents a consensus of experts in foods and nutrition, medicine, epidemiology, public health, and related fields (8). A score of zero was assigned when daily intake reached a level of 450 milligrams or more. Intake between 300

and 450 milligrams was scored proportionately. The upper limit for cholesterol intake was based on consultation with nutrition researchers and exploration of the consumption distribution of this component.

### **Sodium Component**

The score for sodium was based on the amount consumed in milligrams per day. A score of 10 points was assigned when daily sodium intake was 2400 milligrams or less, the amount based on recommendations of the Committee on Diet and Health of the National Research Council (8). A daily intake of 4800 milligrams or more received zero points. Intake between 2400 and 4800 milligrams was scored proportionately. The upper limit for sodium intake was based on consultation with nutrition researchers and exploration of the consumption distribution of this component.

### **Variety Component**

The *Dietary Guidelines*, the Food Guide Pyramid, and the National Research Council's diet and health report all stress the importance of variety in a diet (4,8,15). There is no consensus, however, on how to quantify variety. Dietary variety was assessed by totaling the number of different foods that a person ate in a day in amounts sufficient to contribute at least one-half of a serving in a food group. Food mixtures were disaggregated into their food ingredients and assigned to the appropriate food category. Foods that differed only by preparation method were grouped together and counted as one type of food. For example, baked, fried, or boiled potatoes were counted once. Different types of a food were considered to be a different food. For example, each type of fish—mackerel, tuna, and trout—was considered to be a different food. A

maximum variety score of 10 points was assigned if a person consumed at least half a serving each of 8 or more different types of foods in a day. A score of zero was assigned if 3 or fewer different foods were consumed by a person in a day. Intermediate scores were computed proportionately. These upper and lower limit amounts to gauge food variety were based on consultation with nutrition researchers. For more details on the coding structure used to compute the variety component of the HEI, the reader is referred to the administrative report (3).

### Data and Methods Used to Calculate the Healthy Eating Index

USDA's Continuing Survey of Food Intakes by Individuals (CSFII) provides information on people's consumption of foods and nutrients and extensive information about Americans' demographic and socioeconomic characteristics. CNPP used CSFII data for 1994-96—the most recent data available—to compute the HEI.

For the 1994-96 CSFII (13), dietary intakes of individuals were collected on 2 nonconsecutive days. Data were collected through an in-person interview using the 24-hour dietary recall method, with the parent or main meal planner reporting information for individuals under age 12. The survey was designed to be representative of the U.S. population living in households, and lower income households were oversampled to increase the precision level in analyses of this group. Weights were used to make the sample representative of the U.S. population.

**Table 3. Healthy Eating Index: Overall and component mean scores, 1994-96**

	Year			
	1994	1995	1996	1994-96
<b>Overall</b>	63.6	63.5	63.8	63.6
<b>Components</b>				
Grains	6.6	6.7	6.7	6.7
Vegetables	6.1	6.2	6.3	6.2
Fruits	3.9	3.9	3.8	3.9
Milk	5.4	5.4	5.4	5.4
Meat	6.6	6.5	6.4	6.5
Total fat	6.8	6.8	6.9	6.8
Saturated fat	6.4	6.3	6.4	6.4
Cholesterol	7.9	7.7	7.9	7.8
Sodium	6.3	6.3	6.3	6.3
Variety	7.7	7.6	7.6	7.6

Note: The overall HEI score ranges from 0-100. An HEI score over 80 implies a "good" diet, an HEI score between 51 and 80 implies a diet that "needs improvement," and an HEI score less than 51 implies a "poor" diet. HEI component scores range from 0-10. High component scores indicate intakes close to recommended ranges or amounts; low component scores indicate less compliance with recommended ranges or amounts.

The HEI was computed for people with complete food intake records for the first day of the survey; this allows for comparisons across the years. Prior research has indicated that food intake data based on 1-day dietary provide reliable measures of usual intakes of groups of people (2). The HEI was computed for all individuals 2 years and older—dietary guidelines apply to people of these ages only. Pregnant and lactating women were excluded because of their special dietary needs. Final sample sizes were 5,167 in 1994, 4,904 in 1995, and 4,791 in 1996.

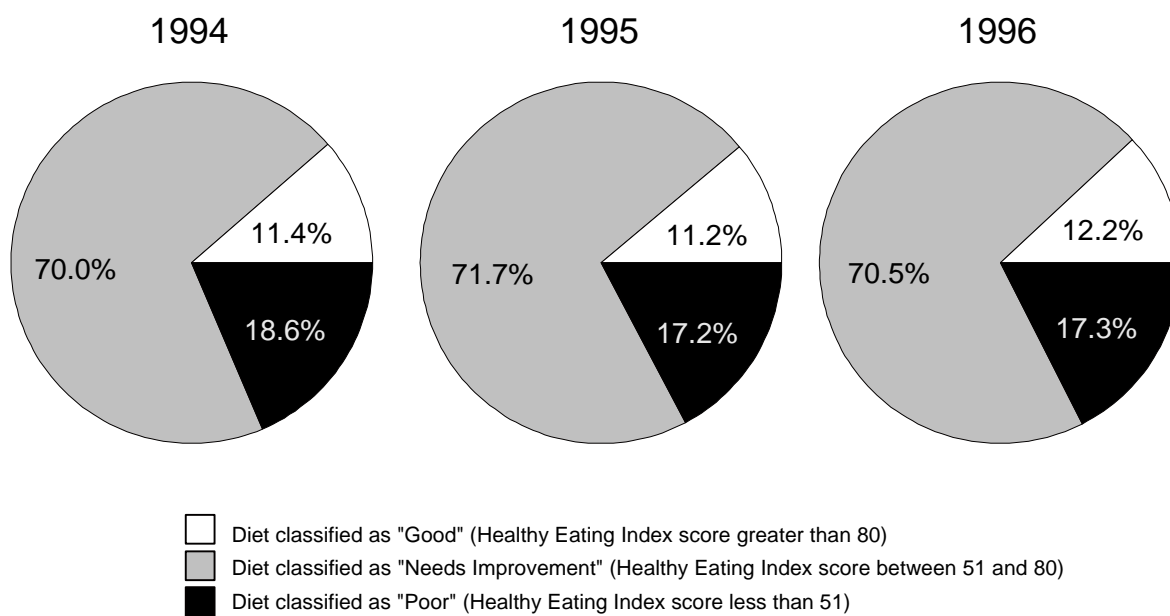
## Results

### Overall Healthy Eating Index Scores

The mean HEI score is 63.6 for 1994, 63.5 for 1995, and 63.8 for 1996 (table 3). An HEI score over 80 implies a "good" diet; an HEI score between 51 and 80, a diet that "needs improvement;" and an HEI score less than 51, a "poor" diet.<sup>2</sup> Between 1994 and 1996, the diets of most people (70 percent) needed improvement (fig. 2). About 12 percent of the population had a good diet, and 18 percent had a poor diet.

<sup>2</sup>In the initial HEI work, Kennedy et al. (7), in consultation with nutrition experts, developed this scoring system for a "good" diet, a diet that "needs improvement," and a "poor" diet.

**Figure 2. Healthy Eating Index Rating, U.S. population, 1994-96**



### Healthy Eating Index Component Scores

During the 1994-96 period, the highest or best mean HEI component score for the U.S. population was for cholesterol (table 3). The cholesterol score averaged 7.8 on a 10-point scale. With an average score of 7.6, variety accounted for the second highest component score. The fruits and milk components of the HEI had the two lowest mean scores over the period: 3.9 and 5.4, respectively. Average scores for the other HEI components were between 6 and 7.

Overall, 71 percent of people had a maximum score of 10 for cholesterol—that is, they met the dietary recommendation (table 4). Fifty-two percent had a maximum score for variety over the 3 years. Fewer than 50 percent of the population met the dietary recommendations for the other 8 HEI components

during 1994-96. About 17 percent of people consumed the recommended number of servings of fruit each day. Twenty-two to 31 percent of people met the dietary recommendations for the grain, vegetables, milk, and meat components of the HEI, and 35 to 40 percent met the dietary recommendations for total fat, saturated fat, and sodium. In general, most people could improve all aspects of their diets.

### Healthy Eating Index Scores by Population Characteristics

HEI scores varied by Americans' demographic and socioeconomic characteristics (table 5). Females had slightly higher scores than did males. Children ages 2 to 3 had the highest average HEI score (74 for 1994-96) among all children, as well as among all age/gender groups. Older children had lower HEI scores than did younger children. Children

ages 2 to 3 scored particularly higher on the fruits and milk components of the HEI than did older children. For example, the average fruit score for children ages 2 to 3 was 7 for 1994-96, compared with 3.5 for males ages 11 to 14; the average milk score for children ages 2 to 3 was 7.3, compared with 5.2 for females ages 11 to 14 (data not shown in tables). Most age/gender groups had HEI scores in the 60- to 69-point range. Both females and males age 51 and over had higher HEI scores than did other adults.

Asian and Pacific Islander Americans had the highest HEI score among the racial groups—an average of 67 for 1994-96. Asian and Pacific Islander Americans had higher average scores on the grain and fat components of the HEI than was the case for other racial groups. (Data are not shown in the tables.)

**Table 4. Percent of people meeting the dietary recommendations for Healthy Eating Index components**

Components	Year			
	1994	1995	1996	1994-96
Grains	21.9	23.0	22.2	22.4
Vegetables	29.4	30.8	31.8	30.7
Fruits	17.8	17.4	17.1	17.4
Milk	25.4	25.4	25.5	25.4
Meat	29.8	29.1	26.4	28.4
Total fat	36.8	36.5	37.5	36.9
Saturated fat	40.3	39.1	40.1	39.8
Cholesterol	71.2	68.8	71.9	70.6
Sodium	35.4	34.5	34.7	34.9
Variety	52.2	52.0	53.0	52.4

**African Americans scored particularly lower on the milk and fat components of the HEI....**

Note: For each component, a person received a maximum score of 10 for meeting the dietary recommendations.

Whites had a higher average HEI score than African Americans had for 1994-96 (64 vs. 59). African Americans scored particularly lower on the milk and fat components of the HEI—an average of 4.2 and 6.2, respectively. Whites scored an average of 5.7 and 6.8 on these two components, respectively. (Data are not shown in the tables.) There was almost no difference in diet quality between Hispanics and those not Hispanic.

HEI scores increased modestly with income. People with household income at or below 50 percent of the poverty thresholds had an average HEI score of 60 for 1994-96, and those with household income between 51 and 100 percent of the poverty thresholds had an average

HEI score of 61.<sup>3</sup> People with a household income over three times the poverty thresholds scored higher on the HEI: 65. People in higher income households scored better on the saturated fat and sodium components of the HEI than did people in lower income households. People with household income over three times the poverty threshold had an average score of 6.6 for saturated fat and 7.9 for sodium; those with household income 50 percent or below the poverty threshold had an average score of 5.7 for saturated fat and 6.6 for sodium. (Data are not shown in the tables.)

<sup>3</sup>In 1995, the poverty thresholds were \$9,935 for a family of two, \$12,156 for a family of three, \$15,570 for a family of four, and \$18,407 for a family of five.

**Table 5. Healthy Eating Index, overall mean scores by selected characteristics, 1994-96**

Characteristic	Index score			
	1994	1995	1996	1994-96
<b>Gender</b>				
Male	63.0	63.0	62.6	62.9
Female	64.2	64.0	65.0	64.4
<b>Age/gender</b>				
Children 2-3	74.4	74.0	73.2	73.9
Children 4-6	66.4	68.8	68.0	67.7
Children 7-10	66.9	67.1	65.9	66.6
Females 11-14	63.1	63.5	64.0	63.5
Females 15-18	61.4	58.4	62.5	60.8
Females 19-50	61.8	61.2	62.7	61.9
Females 51+	67.1	67.6	67.5	67.4
Males 11-14	62.4	63.2	61.2	62.3
Males 15-18	60.4	61.4	60.2	60.7
Males 19-50	61.2	60.6	60.6	60.8
Males 51+	64.0	64.0	65.2	64.4
<b>Race</b>				
White	64.2	63.9	64.4	64.2
African American	58.9	59.5	59.4	59.3
Asian/Pacific Islander American	65.8	66.7	68.0	66.8
Other <sup>1</sup>	64.8	64.5	64.0	64.4
<b>Ethnicity</b>				
Hispanic	63.8	64.5	63.2	63.8
Not Hispanic	63.6	63.4	63.9	63.6
<b>Income as % of poverty</b>				
0-50	58.8	61.2	60.7	60.2
51-100	60.5	61.4	60.5	60.8
101-130	61.5	61.6	61.6	61.6
131-200	62.8	61.4	63.7	62.6
201-299	63.8	63.6	63.6	63.7
300 plus	65.0	64.9	65.0	65.0
<b>Education</b>				
4 years high school or less	60.8	60.6	61.0	60.8
Some college	63.5	63.0	63.2	63.2
4 years college	66.6	65.4	67.1	66.4
More than 4 years college	67.6	68.1	68.4	68.0
<b>Region</b>				
Northeast	65.3	65.0	65.8	65.4
Midwest	64.1	64.0	65.2	64.4
South	61.7	61.7	61.3	61.6
West	64.5	64.6	64.7	64.6
<b>Urbanization</b>				
MSA, <sup>2</sup> central city	64.0	63.2	64.3	63.8
MSA, outside central city	64.5	64.6	64.7	64.6
Non-MSA	61.0	61.6	61.6	61.4

<sup>1</sup>Includes American Indians and Alaskan Natives.

<sup>2</sup>Metropolitan Statistical Area.

Note: The overall HEI score ranges from 0-100. An HEI score over 80 implies a "good" diet, an HEI score between 51 and 80 implies a diet that "needs improvement," and an HEI score less than 51 implies a "poor" diet.

Education level was positively associated with a better diet. People with a high school diploma or less had an average HEI score of 61 for 1994-96, 5 to 7 points less than the scores for those with 4 years of college (66) and those with more than 4 years of college (68). Education may be a predictor of people's ability to translate nutrition guidance information into better dietary practices. Higher education is also associated with higher earnings.

There were regional differences in diet quality. People in the Northeast had the highest HEI score, an average of 65 for 1994-96, and those in the South had the lowest score, an average of 62. People in the South scored lower on the total fat component of the HEI than did people in other regions (data not shown in the tables). People who lived in an urban area (a Metropolitan Statistical Area in or outside a central city) also had a slightly higher HEI score than did people who lived in a nonurban area. This could be because average income, which is an indicator of one's ability to purchase food, is lower in nonurban than in urban areas.

Based on the demographic and socioeconomic characteristics examined, no subgroup of the population had an average HEI score greater than 80—a score that implies a good diet. Certain segments of the American population have a poorer quality diet, compared with other groups. This underscores the need to tailor nutrition policies and programs to meet the needs of different segments of the population, particularly those at a higher risk of having a poor diet.

**Table 6. Mean Body Mass Index by Healthy Eating Index rating for adults, 1994-96**

Age/gender group	Diet quality		
	Good	Needs improvement	Poor
<b>1994</b>			
Females 19+	25.1	25.6	26.0
Males 19+	25.4	26.4	26.6
<b>1995</b>			
Females 19+	25.3	25.6	26.3
Males 19+	25.6	26.5	26.5
<b>1996</b>			
Females 19+	24.8	25.7	26.4
Males 19+	25.7	26.4	26.8
<b>1994-96</b>			
Females 19+	25.1	25.6	26.2
Males 19+	25.6	26.4	26.6

Note: The overall HEI score ranges from 0-100. An HEI score over 80 implies a "good" diet, an HEI score between 51 and 80 implies a diet that "needs improvement," and an HEI score less than 51 implies a "poor" diet.

### Healthy Eating Index and Body Mass Index

Obesity is a significant health problem in the United States. Physical measures of appropriate body weight, such as the Body Mass Index (BMI),<sup>4</sup> are influenced by eating patterns and physical activity. For adults, a BMI of 25 is defined as the upper boundary of healthy weight for both men and women (4).

<sup>4</sup>BMI = weight (in kilograms)/height (in meters)<sup>2</sup>. For the CSFII, mean BMI values are based on self-reported height and weight.

Both females and males age 19 and over with a better diet had a lower BMI (table 6). This finding implies a connection between people's diet quality and their BMI. People with a poor diet are more likely to have a higher BMI, while people with a good diet are more likely to have a lower BMI. Although people with a diet rated as good had a lower BMI than others had, the BMI for many of these people was slightly over 25. This is because, in addition to eating patterns, other factors such as physical activity influence BMI.

## Trends in the Healthy Eating Index: 1989 vs. 1996

How has the quality of the American diet changed from 1989 to 1996 (the first and latest years the Index was calculated) (table 7)? This comparison examines overall HEI scores and Index component scores based on 1-day intake data. The 1989 HEI results are from the previous HEI report (14).

The diets of Americans have slightly, but significantly, improved since 1989. However, people's diets still need to improve further. In 1989, the HEI score for all people was 61.5.<sup>5</sup> By 1996 it was 63.8—a 4-percent increase.<sup>6</sup> Scores increased for all HEI components from 1989 to 1996, with the exception of milk, meat, and sodium. The decrease in the sodium score may be related to the increase in the grain score; grain products contribute large amounts of dietary sodium (11). Noticeable gains in HEI component scores were made in saturated fat and variety.

The increase in the HEI since 1989 may be due to several factors. Since then the Federal Government began various nutrition initiatives—the Food Guide Pyramid, revised Dietary Guidelines for Americans, and the Nutrition Labeling and Education Act. These initiatives were aimed at improving the eating habits of Americans. Also, since 1989, many people have become more aware of the health benefits of a better diet through various nutrition campaigns.

<sup>5</sup>Based on 1-day intake data (14).

<sup>6</sup>Because methods changed from 1989 to 1996 in food group serving calculations, food group scores in 1994-96 may be smaller than they would be using 1989 methods. Hence, the improvement in people's diets between 1989 and 1996 is likely greater than reported here.

**Table 7. Healthy Eating Index, overall and component mean scores, 1989 versus 1996**

	1989	1996
<b>Overall</b>	61.5	63.8
<b>Components</b>		
Grains	6.1	6.7
Vegetables	5.9	6.3
Fruits	3.7	3.8
Milk	6.2	5.4
Meat	7.1	6.4
Total fat	6.3	6.9
Saturated fat	5.4	6.4
Cholesterol	7.5	7.9
Sodium	6.7	6.3
Variety	6.6	7.6

Note: The overall HEI score ranges from 0-100. An HEI score over 80 implies a "good" diet, an HEI score between 51 and 80 implies a diet that "needs improvement," and an HEI score less than 51 implies a "poor" diet. HEI component scores range from 0-10. High component scores indicate intakes close to recommended ranges or amounts; low component scores indicate less compliance with recommended ranges or amounts. For 1989, scores are based on 1-day intake data.

## Conclusions

Americans' eating patterns, as measured by the Healthy Eating Index (HEI), have slightly, but significantly improved since 1989. Although this trend is in the desired direction, the diets of most Americans still need improvement. In 1994-96, only 12 percent of Americans had a diet that could be considered good.

From 1989 to 1996, the average scores increased for 7 of the 10 HEI components: Grains, vegetables, fruits, total fat, saturated fat, cholesterol, and variety. Grains, vegetables, and fruits are generally high in fiber and low in total fat, saturated fat, and cholesterol, thereby influencing these latter three components. Although fruit scores increased, in 1996 only 17

percent of all Americans ate the recommended number of fruit servings on a given day.

From 1989 to 1996, the average score for the milk, meat, and sodium components declined. In 1996, only 26 percent of people consumed the recommended number of servings of milk products on a given day. Before then, there had been a decline in milk consumption and a simultaneous increase in carbonated soft drink consumption (10). The decrease in the sodium score is likely related to the increase in the grains score because many grain products, such as breads, are high in sodium.

One of the factors that influence dietary quality is income. The impact of income on the ability to purchase a variety of

foods is evident in the variety scores for different income groups. People with a higher income are able to afford more variety—more types of fruits and vegetables—in their diets, and their HEI scores tend to increase. People with a household income 50 percent of the poverty thresholds or below had an average variety score of 6.9 for 1994-96; whereas, those with a household income of 300 percent of the poverty thresholds or more had an average variety score of 7.9 (data not shown in the tables).

Education, age, gender, race, and area of residence also influence diet quality. People with 4 years of college have a better diet than those without. People with more education may acquire more nutrition information, which improves the quality of their diets (18). In general, children less than 11 years of age have a better diet than others: perhaps parents are more attentive to children's diets. Adults over 50 years of age have better diets than other adults have, and females tend to have a slightly more healthful diet than males do. African Americans and people living in the South and nonurban areas have a poorer quality diet than do their respective counterparts.

These findings provide an awareness and better understanding of the types of dietary changes needed to improve people's eating patterns. USDA and other Federal Departments conduct various nutrition education and promotion activities designed to improve people's diets. USDA also has a number of partnerships with the private sector to achieve this goal. The HEI is an important tool that can be used to assess the effect of these activities and to provide guidance to better target and design nutrition education and public health interventions.

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